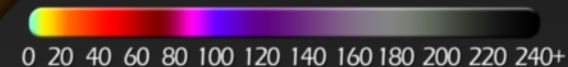




Tsunami

Detection and Notification

Wave Height (cm)



National Tsunami Warning Center

Located in Palmer, Alaska *website -* **ntwc.arh.noaa.gov**

This center monitors earthquakes world-wide and determines if a tsunami has been generated which may effect the N.A. coasts, and Caribbean.

All west coast tsunami warnings, advisories, watches, and informational statements are issued by this office.



National Tsunami Warning Center

website - ntwc.arh.noaa.gov

United States Department of Commerce

National Oceanic and Atmospheric Administration's / National Weather Service

National Tsunami Warning Center


weather.gov

Home News Organization Search for: NWS All NOAA Go


0 West Coast/Alaska Tsunami Warning Center name change effective October 1, 2013

No Watch, Warning, or Advisory


For the continental U.S., Canada, Alaska, Puerto Rico or the Virgin Islands. For other regions please see [PTWC](#)

 **Last Event Details**


Location: 90 miles SW of Eureka, California
Magnitude: 4.5, **Depth:** 8.1 (Mi.)
Lat: 39.8 ° N **Lon:** 125.3 ° W
Origin Time: 3/10/2014 3:28:06 AM

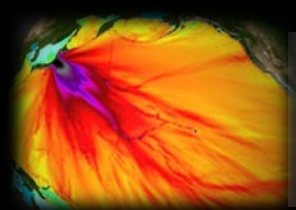
•  - Information Issued at: 3/10/2014 3:33:58 AM

☒ Alert Layer ☒ Latest Event
☐ Previous 20 ☐ Observations ☐ Forecasts ☐ Tide Gauges ☐ Dart Buoy ☐ NTWC Break Points Layer



Atom
XML CapXML

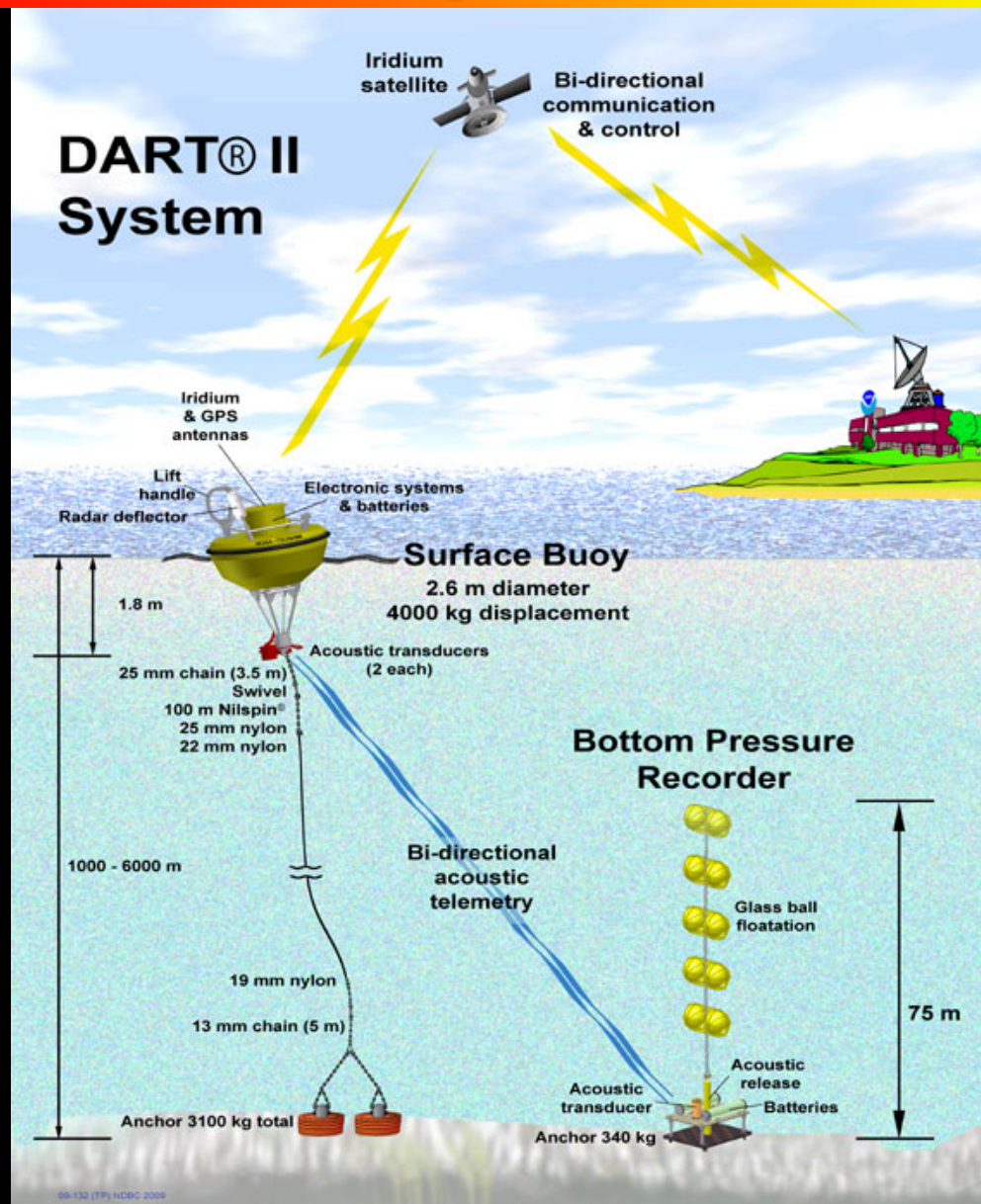
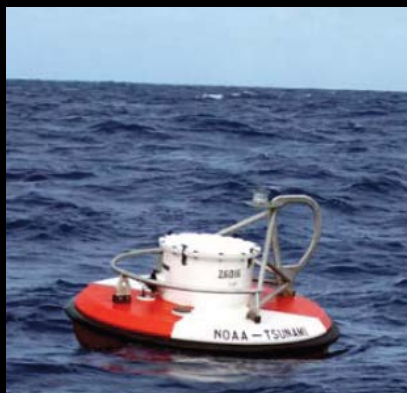
 Follow us!

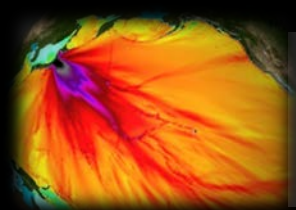


DART buoys

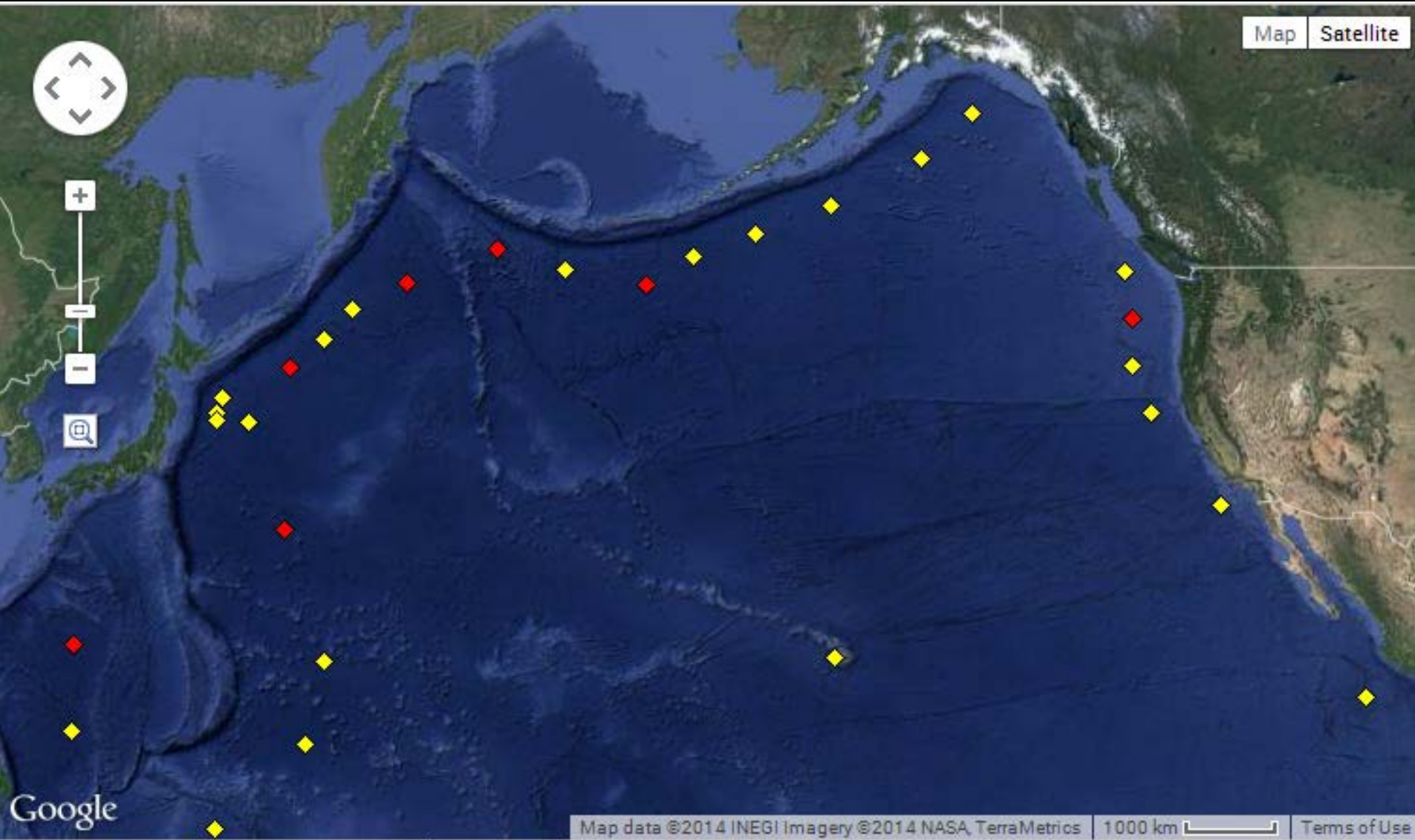
Deep-ocean Assessment and Reporting of Tsunamis - DART®

In 2001 there were 6 tsunami buoys across the Pacific Ocean. Today there are 39 for the Pacific, Atlantic, and Caribbean.





Global DART buoys



DART Station 21413 - 690 NM Southeast of Tokyo, Japan, 11 March 2011

Water depth (m)

5825,80

5825,60

5825,40

5825,20

5825,00

5824,80

5824,60

5824,40

DART II payload 2.6-meter discus buoy
30.515 N 152.117 E (30°30'55" N 152°7'1" E)
Owned and maintained by National Data Buoy Center
Water depth: 5822 m
Watch circle radius: 4016 yards

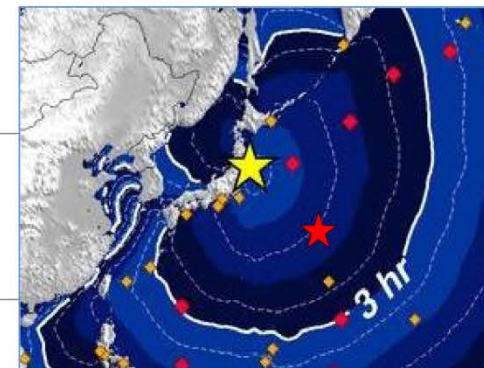
Earthquake timestamp: 11 March 2011, 05:46:23 UTC

Tsunami wave
UTC 07:02
5824,95 m

UTC 07:07
5825,64 m

UTC 05:48
5824,77 m

UTC 07:20
5824,52 m



U.S. NOAA

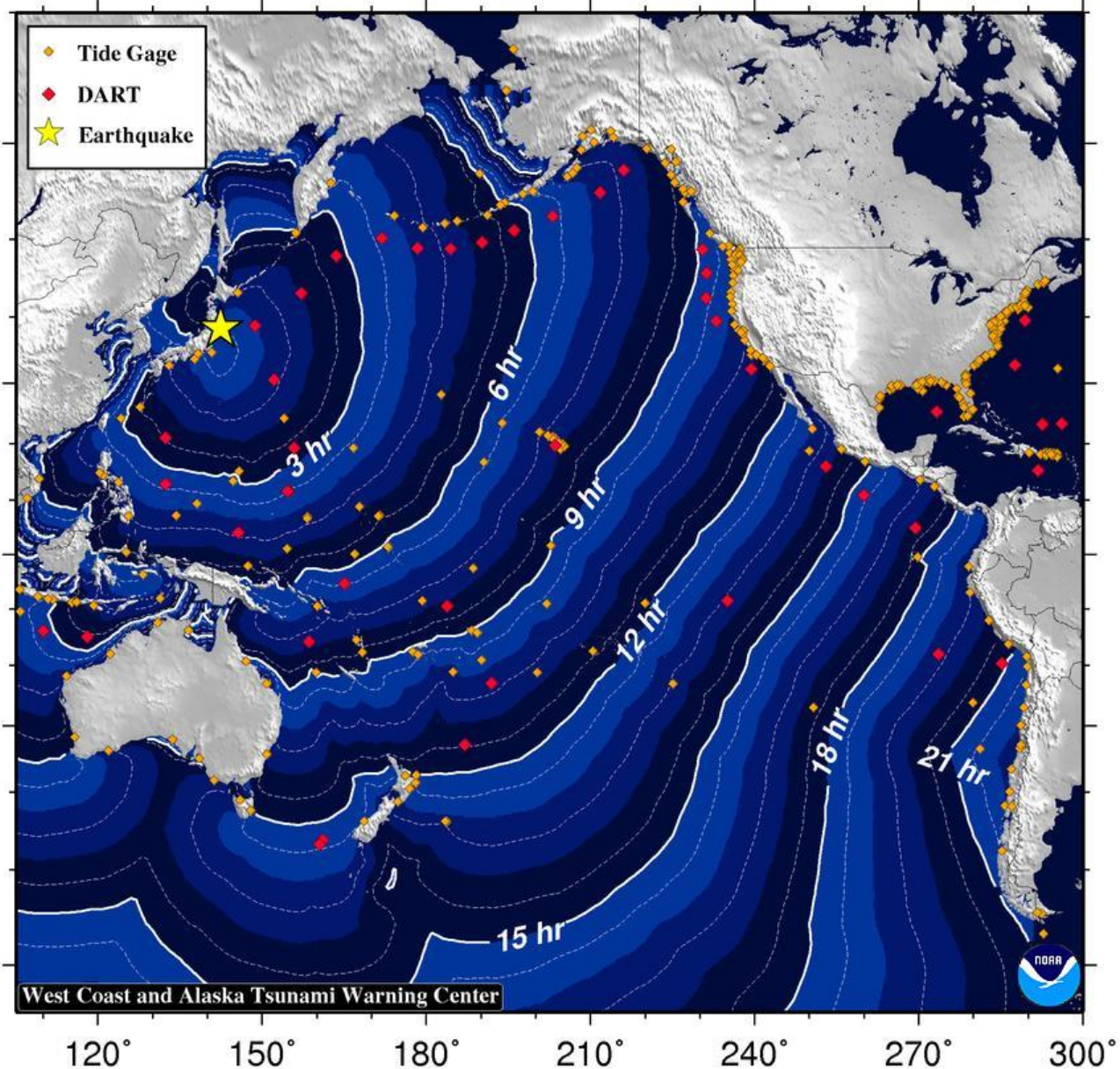
★ Station 21413

Time (UTC)

04:01 04:19 04:37 04:55 05:13 05:31 05:49 06:07 06:25 06:43 07:01 07:19 07:37 07:55 08:13 08:31 08:49 09:07 09:25 09:43 10:01 10:19 10:37 10:55 11:13 11:31 11:49 12:07 12:25 12:43 13:01 13:19 13:37 13:55 14:13 14:31 14:49 15:07 15:25 15:43 16:01 16:19 16:37 16:55 17:13 17:31 17:49 18:07 18:25 18:43 19:01 19:19 19:37 19:55 20:13 20:31 20:49 21:07 21:25 21:43 22:01 22:19 22:37 22:55 23:13 23:31 23:49

Tsunami Travel Times

Tsunami travel time contours in hours, beginning from the earthquake origin time.



West Coast and Alaska Tsunami Warning Center

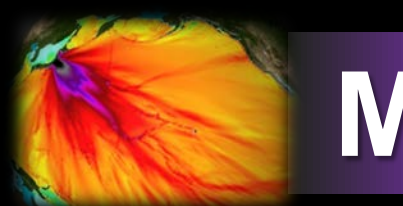
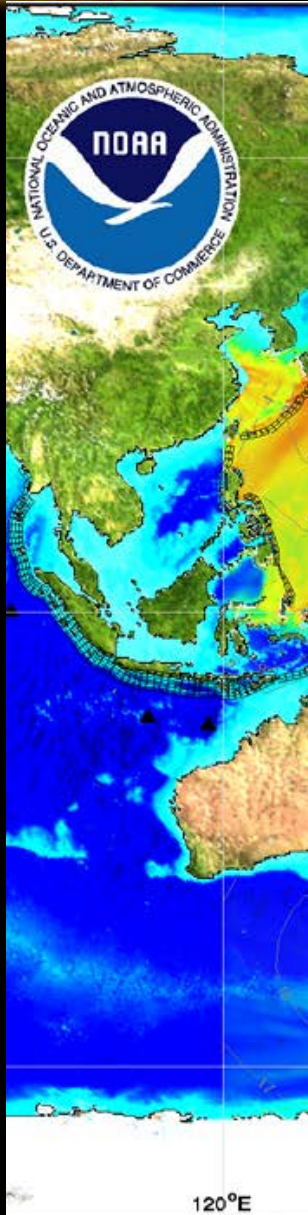
Event ID: lhvpd9

Earthquake Magnitude: 9.0

Earthquake Location: [38.322N, 142.369E], "near the east coast of Honshu, Japan"

Origin Time: 05:46:23 (UTC)

Date: 3/11/2011





Tsunami Warning

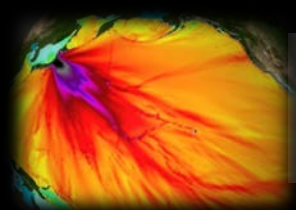
Danger! Widespread inundation with waves over 1 meter are imminent or occurring. Move to higher ground immediately!

Tsunami Advisory

Strong currents or waves of up to 1 meter are imminent or occurring. Move away from harbors and marinas.

Tsunami Watch

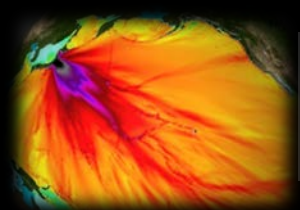
Potential tsunami which may later impact the area. Can be upgraded to a warning or advisory. Stay tuned.



NTWC Tsunami Notification

Following the Honshu, Japan earthquake 2011

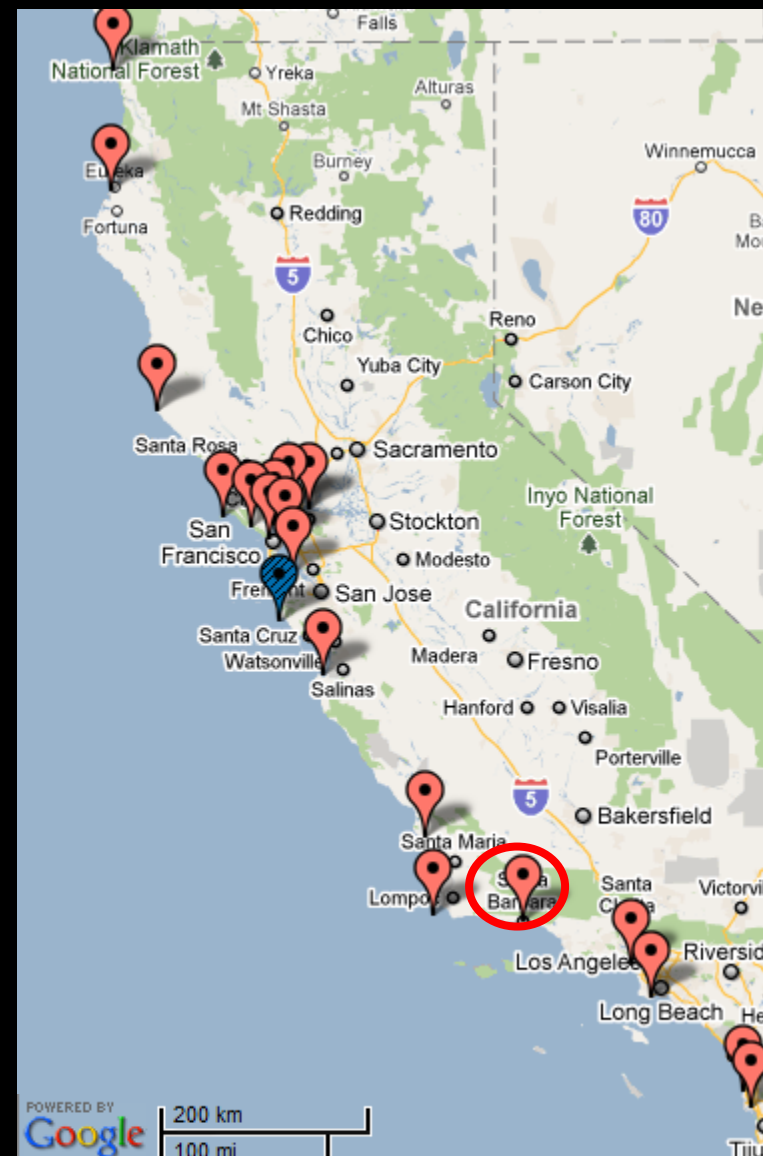
- Within minutes of the quake, Tsunami Information Statement issued
- Approximately 11:30pm Thursday, March 10
 - ✓ Tsunami **WATCH** was issued for CA.
- At 12:44am Friday, March 11
 - ✓ Tsunami **WARNING** issued for north of Pt. Conception
 - ✓ Tsunami **ADVISORY** issued for south of Pt. Conception.
- Arrival time in Santa Monica predicted at 8:32am PST

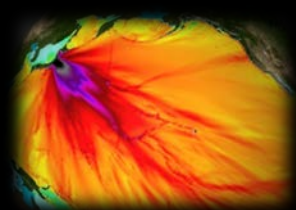


California's Tide Gauges

Santa Barbara

**Example from the 2011
Honshu, Japan tsunami**

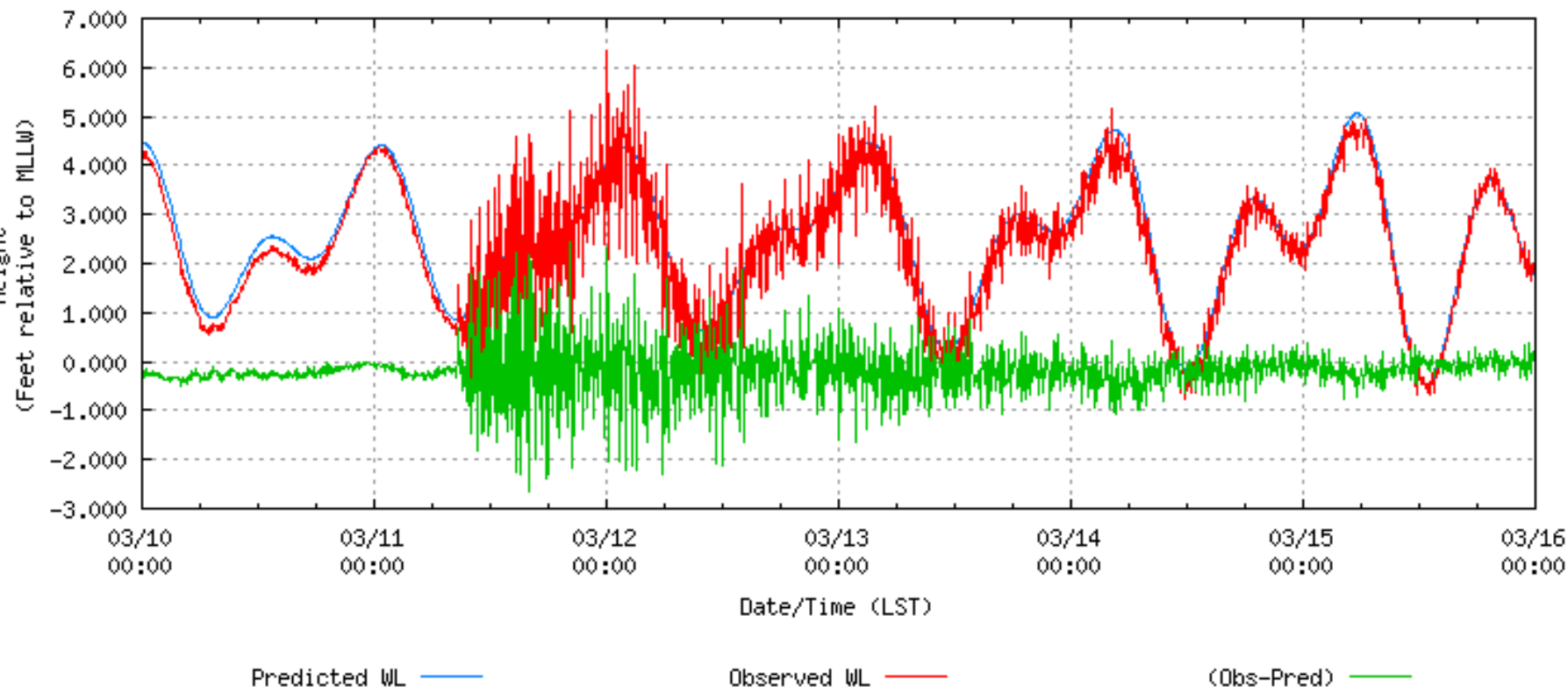


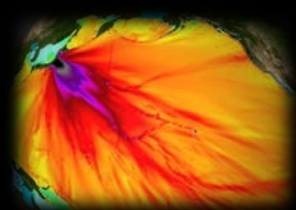


Santa Barbara Tide Gauge

During the Honshu, Japan tsunami on March 11, 2011

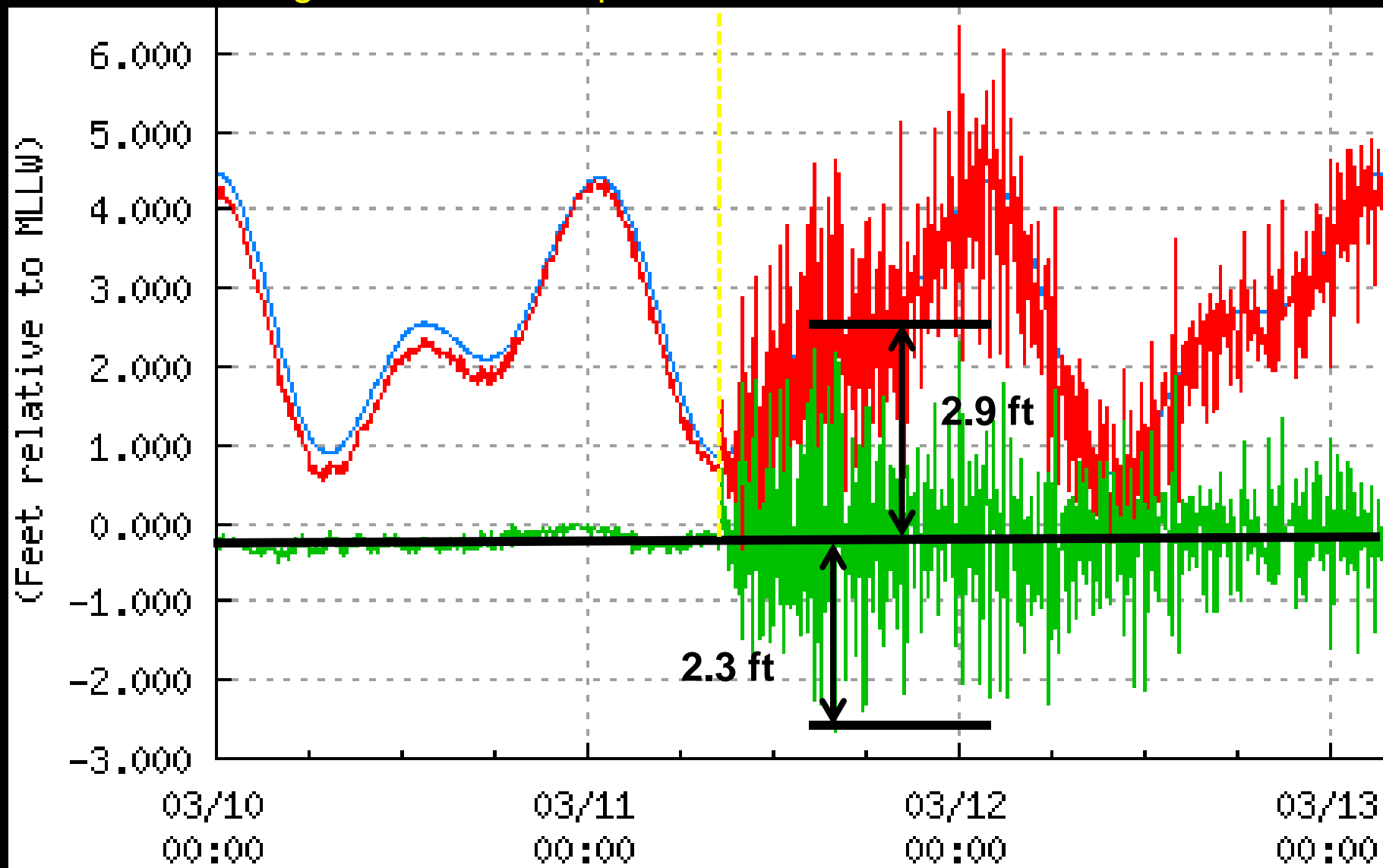
NOAA/NOS/CO-OPS
Preliminary Water Level (N1) vs. Predicted Plot
9411340 Santa Barbara, CA
from 2011/03/10 - 2011/03/15





Santa Barbara Tide Gauge

During the Honshu, Japan tsunami on March 11, 2011

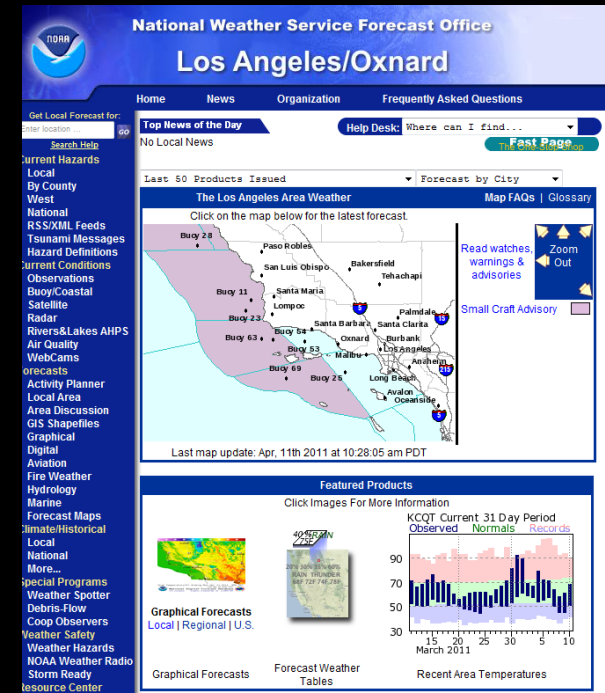


National Weather Service Los Angeles/Oxnard

Located in Oxnard, California *website* - weather.gov/losangeles

Unlisted 805-988-6619

- Activate EAS through NOAA Weather Radio systems
- Wireless Emergency Alerts to cell phones through FEMA
- Provide local tsunami statements on expected impacts



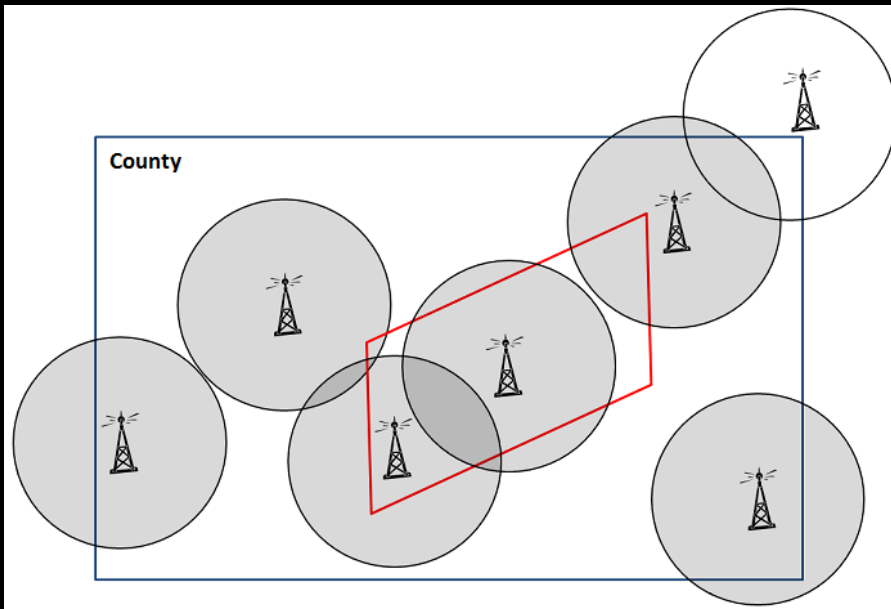
Wireless Emergency Alerts (WEA)

- WEA is a free public mobile alerting service that targets your current location using radio-like technology
- FEMA cell alerts only 90 characters long

Cell carrier targeting areas



- IPAWS is a national alerts aggregator run by FEMA that feeds WEA and other alerting channels



Wireless Emergency Alerts (WEA)

- Major carriers are committed to producing WEA capable phones
- If you travel into an alert area after it was originally sent, you should still receive it

Extreme

Severe

Warning Type	WEA Message
Tsunami Warning	Tsunami danger on the coast. Go to high ground or move inland. Check local media. -NWS
Tornado Warning	Tornado Warning in this area til hh:mm tzT. Take shelter now. Check local media. -NWS
Extreme Wind Warning	Extreme Wind Warning this area til hh:mm tzT ddd. Take shelter. -NWS
Hurricane Warning	Hurricane Warning this area til hh:mm tzT ddd. Check local media and authorities. -NWS
Typhoon Warning	Typhoon Warning this area til hh:mm tzT ddd. Check local media and authorities. -NWS
Flash Flood Warning	Flash Flood Warning this area til hh:mm tzT. Avoid flooded areas. Check local media. -NWS
Dust Storm Warning	Dust Storm Warning in this area til hh:mm tzT ddd. Avoid travel. Check local media. -NWS

Wireless Emergency Alerts (WEA)



- Tsunami messages on WEA
 - Tsunami warnings only and sent county-wide (*not triggered if watch/advisory in effect – May 2014*)
 - No capability yet to only notify coastal zones or polygon area

Severe Alert

Emergency Alerts: Flash Flood Warning this area til 5:30 PM PST. Avoid flood areas. Check local media. - NWS

2:36PM, Feb 28

Extreme Alert

Emergency Alerts: Tornado Warning in this area til 4:00 AM PST. Take shelter now. Check local media. -NWS

3:25AM, Mar 1

www.ready.gov/alerts

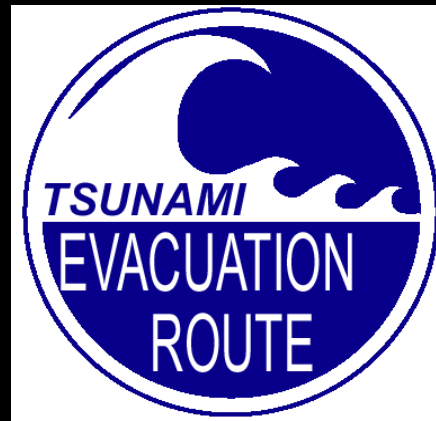
NWS TsunamiReady Program

- Create minimum standard community guidelines for adequate tsunami readiness
- Strengthen communication between city/county and NWS Oxnard
- NWS Oxnard assists city/county EM to complete application
- Perform on-site WP and EOC verification “checklist.” Tsunami sign placement.



TsunamiReady Recognition

- TsunamiReady recognition letter valid for 3 years, renewal for additional 3 years
- Official TsunamiReady sign & certificate
- Acquire points for NFIP for possible lower flood insurance rate
- Listing on StormReady/TsunamiReady Website.





Thank You!

Comments?

Eric Boldt, WCM

NWS Los Angeles/Oxnard

eric.boldt@noaa.gov

805 988-6623

805 223-1159 cell

Wave Height (cm)

